Oil Field Environmental Incident Summary

Incident: 20130517102241 ***Date/Time of Notice:*** 05/17/2013 09:53
Responsible Party: EOG Resources, Inc.
Well Operator: EOG RESOURCES, INC.
Well Name: KANDIYOHI 200-33 SWD
Field Name: CLEAR WATER ***Well File #:*** 90168
Date Incident: **5/16/2013** ***Time Incident:*** 15:30 ***Facility ID Number:***
County: BURKE ***Twp:*** 159 ***Rng:*** 90 ***Sec:*** 33 ***Qtr:*** NW NW
Location Description: This is an injection line leak in a pasture. Sec 5-158-90 NWNW

Submitted By: Luigi Heydt ***Received By:***

Contact Person: Luigi Heydt
600 17TH ST STE 1000N
DENVER, CO 80202

General Land Use: Pasture ***Affected Medium:*** Soil and Water

Distance Nearest Occupied Building:
Distance Nearest Water Well:

Type of Incident: Pipeline Leak

Release Contained in Dike: No ***Reported to NRC:*** Yes

	Spilled	*Units*	*Recovered*	*Units*	*Followup*	*Units*
Oil	0	barrels	0	barrels		
Brine	0	barrels	0	barrels		
Other	0	barrels	0	barrels		

Description of Other Released Contaminant:

Inspected: ***Written Report Received:*** ***Clean Up Concluded:***

Risk Evaluation:

Areal Extent:

Potential Environmental Impacts:

We have confirmed three pot holes containing water have been affected

Action Taken or Planned:

Contaminated soil will be removed and disposed of and we are waiting for direction from USFWS and NDDoH on the cleanup procedures for the water in the pot holes.

Wastes Disposal Location: Clean Harbors

Agencies Involved: USFWS

Updates

Date: 5/16/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Township 158 N
Range 90 W
Sections - NE of 6 and NW of 5

17:20 5/16/2013 Arrived on Kandiyohi 200-33 SWD; meeting with company reps.

Surveyed damage of corroded steel pipeline to salt water disposal well. Landowner discovered spill and notified EOG. There are five distinct brine water emergence areas, with two of the areas acting as one larger leak (GPS at all locations with exception of the two leaks acting as one, where only one GPS point was taken). First actions of remediation were to contain the leak and to bring in vac trucks to suction water in contaminated wetlands. This action was stopped when it was discovered that a wetland easement was in place preventing any type of altering of wetlands without USFWS approval. Dikes were then constructed to prevent any further contamination of the aforementioned wetlands and to protect unaffected wetlands. In all, three wetlands were affected by the leaks and another three in possible harm's way. Six separate samples were taken from the six wetlands on location, and another two samples were taken at two of the five spill areas.

10:32 5/17/2013 Arrived on Kandiyohi 200-33 SWD meeting with USFWS to discuss remediation of wetlands.

USFWS staff, EOG staff and I (Scott Stockdill) toured the location to determine the extent of the damage of the wetlands and possible remediation tactics. Company man began by stating the pipeline will be replaced rather than fixing the present leaks. After a survey of the situation, the USFWS gave EOG permission to suction up the water out of the two smaller temporary wetlands that were affected the most (Wetlands # 1 and 3). USFWS asked that the NDDoH sample Wetlands 1 and 3 again after they have been drained to determine lasting impact. Wetland # 5, which is the largest and the least impacted of the affected wetlands, will be monitored rather than drained.

EOG is going to begin remediation immediately and plans to work until site is clean, weather permitting. Strata is doing all testing of impacted areas with a clean chloride level being considered less than 150 PPM.

USFWS has asked that all sample results that the state receives be shared with it.

Topography of land is typical of the prairie pothole region and allows for contaminated water to collect in adjacent wetlands.

Spills occurred in pasture being actively grazed. EOG has fenced off all impacted areas and leak locations to prevent livestock from entering sites.

All impacted water is being hauled to a nearby disposal well, with the impacted soil being sent to Clean Harbors.

Date: 5/17/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Scott Stockdill was deployed to the location approximately 16:00 on 16 May 2013. Assessment and discussion with site supervisor. Samples taken. Second visit, along with USFWS on 5/17/13, for further discussion and planning.

Date: 5/21/2013 ***Status:*** Inspection ***Author:*** Roberts, Kris

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

This location is actually in Mountrail County at 158-90-5 NW, NW and 6 NE, NE. The saltwater disposal well the line feeds into is in Burke County, 159-90-33 NW, NW, and that is the way the Oil and Gas Division labels the site in its database.

Date: 5/23/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

11:46 AM 5/23/13

Met with company man and contractor, along with NDDoH groundwater staff, at Kandiyohi 200-33 SWD to discuss current status of remediation and possible groundwater impact.

Initial determination of five leaks along pipeline was deemed incorrect; excavation revealed that there were only four leaks at the four separate leak locations listed on the map in the report folder.

EOG and contractors began excavation of three of the leak locations, with excavation scheduled to begin on 5/24/2013 at source 1. Excavation was at a depth of 30' at source 4 before EOG encountered a soil sample below their 150 PPM guideline. At that time, they shifted their concern to source 3, where excavation was at a depth of 14' and continuing to go deeper. At source 2, EOG had reached a depth of 16'-17' without reaching its desired chloride level before the excavated pit began to fill in with groundwater.

EOG, with the consent of the USFWS, suctioned up and removed the entire water content of wetland 1 and were in the process of suctioning up the entire water content of wetland 3. Contractor at that time asked if it would be all right to scrape up the topmost layer of sediment out of both wetlands to remove the remaining salts. EOG was instructed by the USFWS to instead flush the wetlands several times before attempting to scrape the soil out. Wetland 5 will continue to be monitored with the latest chloride content reading at 1100 PPM.

Visit to site determined the need for a groundwater impact investigation, with a fair amount of monitoring wells planned on site once surficial remediation is complete.

According to EOG, three miles of steel pipeline will be removed during which time an environmental response team member will be on site to determine if any further contamination has occurred.

Contacted USFWS at 10:39 AM 5/24/13 to give an update on the current situation of the remediation. USFWS stated that it will be doing more research to determine the proper remedial effort for wetland number 5.

Date: 5/30/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Received email from USFWS at 10:49 AM.

The USFWS gave the authorization to pump and flush wetland 5 (remaining impacted wetland) contingent upon EOG making sure that proper approvals are in place from other local, county, state and federal entities as required. Company man with EOG explained that they would pump the contaminated water up to a tank on the well pad. From there, they would load trucks and dispose of the water.

USFWS also recommended that EOG complete a basic topographic survey to help in remediation efforts once all the impacted soil has been removed.

Date: 6/11/2013 ***Status:*** Inspection ***Author:*** Roberts, Kris

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Arrived on location 10:40, meeting USFWS staff, contractor and EOG staff. Primary discussion: EOG will provide two work plans: one for cleanup, monitoring, and restoration of the primary leak locations, and the second for how they plan to evaluate the 2-mile balance of the steel salt water line. These work plans will be submitted and discussed in a meeting with NDDoH in a meeting in Bismarck in the near future. Maximum levels of chloride in state waters were communicated to EOG. 175 mg/L in Class I waters; 250 mg/L in Class II, III, and wetlands.
Proceeded with primary leak location inspection and plans. Zones mentioned here are those as numbered by EOG. Zone 1: Initial excavation and continued test hole to 28-30 feet below grade revealed high concentrations of chloride. Approved temporary backfilling to level high enough so workers can deal with the leaking pipe.
Pond 2: USFWS wants pond sucked dry and sediment dealt with (whole area is a wetland easment area). Seep from excavation 2 will be intercepted and captured. Approval was given to trench intercept the fresh water spring to the east and divert to another, unimpacted pond, and/or use as flushing/rinsing water.
Excavation 2: South and east wall screened clean; water accumulating in the south end questionable (all ponds will be tested again), impact water apparently migrated downslope to the north. West wall still hot and awaiting removal of impacted stockpile. Excavation 3: Far west wall screens clean; west wall closer to pipe still hot and shows visual impact. East wall clean down to the 6-8 foot depth, but then goes hot, likely due to impacted water. Pond 3: Was very hot to start; pumped 2X and flushed once. Will sample again and pump as necessary to meet standard. Will have to get the sediment out anyway. Path between pond 3 and 4 will have to be removed. Site 4: Sugar sand. Impacted by both overland flow and subsurface flow. High concentrations to 26 feet plus.
Ended inspection and off location at 14:00

Date: 8/1/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Arrived on location 10:44 AM CST 8/1/2013.

EOG began to excavate pipeline due to pressure test failing. During work on 8/1/13, no leaks were found in the extent of the pipeline removed (3/4 of a mile).

Excavated pits are in the process of being filled with heavy clay. All impacted wetlands are drained down; wetlands #3 and #6 (EOG numbering) had wetland plants doing well with the largest impacted wetland #3 seeing a large number of shorebirds and waterfowl present.

Left Location 3:48 PM CST 8/1/2013.

Date: 8/2/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Arrived on location 10:34 AM CST 8/2/13.

Pipeline still in the process of excavation, water coming out of cut pipeline testing @ 3.04 mS. EOG instructed to build berms to prevent water from contaminating further soil and water, and EOG was instructed to remove all water from pipeline before cutting and removing pipeline off location.

Left location at 12:15 PM CST 8/2/2013.

Date: 8/16/2013 ***Status:*** Inspection ***Author:*** Roberts, Kris

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Received call from company men They related that their contractor was unable to pull the portions of lines that were bored under wetland and stream crossings. Alternate plan is to pressure test each of these segments, and if there is no pressure loss, leave in place and bore in new line beside the old one. Approved by Roberts.

Date: 9/24/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Arrived on location 3:00 PM 9/24/2013.

Monitor wells have been installed, and impacted area has been filled to grade. Contractor is going to begin work on sampling and delineating the impact zone sometime during the week of September 30.

Continued followup required.

Date: 12/3/2013 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Samples taken from monitor wells drilled at location. Results in incident folder.

Sample taken at Westby Lake. Sample improperly taken and had to be re-sampled.

Date: 8/18/2015 ***Status:*** Correspondence ***Author:*** Suess, Bill

Updated Oil Volume:

Updated Salt Water Volume: 6665.00 barrels

Updated Other Volume:

Updated Other Contaminant

Notes:

EOG Resources considers the release volume of the incident to be indeterminate. However, at the request of the NDDoH, EOG has best estimated the release volume to be 6,665 barrels based on site characteristics and the observed impacts.

Date: 9/29/2015 ***Status:*** Correspondence ***Author:*** Suess, Bill

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Spoke with Jason R at EOG. The wells and trenches have been installed. To date, EOG has recovered approximately 2,000 bbls from the trench recovery system, with an average chloride concentration of 13,000 ppm. They are having issues recovering much water from the wells. To date, they have only recovered about one barrel. They are in the process of reworking the pump system associated with the wells.

Date: 9/22/2016 ***Status:*** Inspection ***Author:*** Stockdill, Scott

Updated Oil Volume:

Updated Salt Water Volume:

Updated Other Volume:

Updated Other Contaminant

Notes:

Arrived on location 1:30, 9/22/2016.

Site appears to be doing well with vegetation growing well throughout the entire impacted area.

More follow-up is necessary.